AMENDMENTS IN THE CLAIMS

1. (Currently amended) A method for enhancing signal-to-noise ratio associated with a transmitted digital communication signal without affecting its power flux density, the method comprising the following steps performed in a transmitter:

selecting a reduced information data rate that is a fraction of a full data rate R, wherein the reduced information data rate is 1/4 of the full data rate R;

randomizing the reduced data rate information signals to produce an encoded data stream at the full data rate R; and

transmitting the encoded data stream;

wherein the reduced information data rate results in an enhanced signal-to-noise ratio, per bit of information, that is increased by a factor of four due to reduction in the information data rate increasing the energy per bit, and wherein transmittal of the encoded data stream at the full data rate ensures that power flux density will not be significantly changed;

wherein the information data rate is decreased without any corresponding increase in the power flux density, the information data rate being reduced to a selected fraction, 1/4, of the full data rate R resulting in an encoded sequence at the full rate R, containing information data at the reduced R/4 rate; and

wherein the effect of transmitting at the reduced information data rate, R/4, is that the signal to noise ratio is increased by a factor of four because reduction in the information data rate increases the energy per bit without change in power flux density because the randomized combined data stream is still being transmitted at the full data rate.

2. (Previously Amended) The method of claim 1, further comprising the following steps performed in a receiver:

receiving and demodulating the transmitted encoded data stream; and

recovering data at the reduced information data rate.

3. (Previously Amended) The method of claim 1, wherein the randomizing step comprises:

generating a pseudorandom noise sequence of bits at the full data rate R; and

logically combining the pseudorandom noise sequence with the reduced information data rate signals to produce the encoded data stream.

4. (Previously Amended) The method of claim 3, wherein the logically combining step further comprises the step of performing a logical exclusive OR operation.

5. (Previously Amended) The method of claim 3, further comprising the following steps performed in a receiver:

generating a pseudorandom noise sequence; and

logically combining the pseudorandom noise sequence generated in the receiver with the received data signals, to recover the signals transmitted at the reduced data rate.

6. (Currently amended) A digital communication apparatus, comprising:

means for reducing the rate of an information data stream to be transmitted from a full rate R to a selected reduced rate, wherein the selected reduced rate is 1/4 of the full data rate R;

a pseudorandom noise source generating a stream of practically random data at the full data rate R;

means for logically combining the reduced rate information data stream and the data stream from the pseudorandom noise generator; and

means for transmitting the logically combined data stream;

wherein signal-to-noise performance of the transmitter is enhanced without increasing power flux density levels;

wherein the reduced information data rate results in an enhanced signal-to-noise ratio, per bit of information, that is increased by a factor of four due to reduction in the information data rate increasing the energy per bit;

wherein the information data rate is decreased without any corresponding increase in the power flux density, the information data rate being reduced to a selected fraction, 1/4, of the full data rate R resulting in an encoded sequence at the full rate R, containing information data at the reduced R/4 rate; and

wherein the effect of transmitting at the reduced information data rate, R/4, is that the signal to noise ratio is increased by a factor of four because reduction in the information data rate increases the energy per bit without change in power flux density

because the randomized combined data stream is still being transmitted at the full data rate.

7. (Previously Amended) The digital communication apparatus of claim 6, wherein:

the means for logically combining comprises a logical exclusive OR circuit.

8. (Previously Amended) The digital communication apparatus of claim 6, further comprising:

means for receiving and demodulating the logically combined data stream;

a second pseudorandom noise source located near the means for receiving, for generating a stream of data identical with the one produced by the first pseudorandom noise source; and

means for logically combining the demodulated data stream with the data stream from the second pseudorandom noise source, for recovering the original data stream at the reduced data rate.

9. (Previously Presented) The digital communication apparatus of claim 6, wherein the means for reducing the rate of the information data stream comprises data buffers used to store the information data stream.

10. (Previously Presented) The digital communication apparatus of claim 6, wherein, upon input to the means for transmitting, the logically combined data stream is used to modulate a carrier via binary phase shift keying (BPSK).

11. (Currently Amended) A system, comprising:

a data rate control device operable to reduce the rate of an information data stream to be transmitted from a full rate R to 1/4 of the full data rate R;

a pseudorandom noise source operable to generate a stream of practically random data at the full data rate R;

a first logical exclusive OR circuit operable to combine the reduced rate information data stream and the data stream from the pseudorandom noise generator;

a transmitter operable to send the logically combined data stream;

a receiver operable to demodulate the logically combined data stream;

a second pseudorandom noise source located near the receiver, operable to generate a stream of data identical with the one produced by the first pseudorandom noise source; and

a second logical exclusive OR circuit operable to combine the demodulated data stream with the data stream from the second pseudorandom noise source, to recover the original data stream at the reduced data rate;

wherein the reduced information data rate results in an enhanced signal-to-noise ratio, per bit of information, that is increased by a factor of four due to reduction in the information data rate increasing the energy per bit, and wherein transmittal of the

encoded data stream at the full data rate ensures that power flux density will not be significantly changed;

wherein the information data rate is decreased without any corresponding increase in the power flux density, the information data rate being reduced to a selected fraction, 1/4, of the full data rate R resulting in an encoded sequence at the full rate R, containing information data at the reduced R/4 rate; and

wherein the effect of transmitting at the reduced information data rate, R/4, is that the signal to noise ratio is increased by a factor of four because reduction in the information data rate increases the energy per bit without a change in power flux density because the randomized combined data stream is still being transmitted at the full data rate.

12. (Previously Presented) The system of claim 11, wherein data rate control device comprises data buffers operable to store the information data stream.

13. (Previously Presented) The system of claim 11, wherein, upon input to the transmitter, the logically combined data stream is used to modulate a carrier via binary phase shift keying (BPSK).

14. (New) A digital communication apparatus, comprising:

means for reducing the rate of an information data stream to be transmitted from a full rate R to a predetermined reduced rate, wherein the predetermined reduced rate is 1/n of the full data rate R;

a pseudorandom noise source generating a stream of practically random data at the full data rate R;

means for logically combining the reduced rate information data stream and the data stream from the pseudorandom noise generator; and

means for transmitting the logically combined data stream;

wherein signal-to-noise performance of the transmitter is enhanced without increasing power flux density levels;

wherein the reduced information data rate results in an enhanced signal-to-noise ratio, per bit of information, that is increased by a factor of n due to reduction in the information data rate increasing the energy per bit;

wherein the information data rate is decreased without any corresponding increase in the power flux density, the information data rate being reduced to a predetermined fraction, 1/n, of the full data rate R resulting in an encoded sequence at the full rate R, containing information data at the reduced R/n rate; and

wherein the effect of transmitting at the reduced information data rate, R/n, is that the signal to noise ratio is increased by a factor of four because reduction in the information data rate increases the energy per bit without change in power flux density because the randomized combined data stream is still being transmitted at the full data rate.

15. (New) The digital communication apparatus of claim 14, wherein:

the means for logically combining comprises a logical exclusive OR circuit.

16. (New) The digital communication apparatus of claim 14, further comprising:

means for receiving and demodulating the logically combined data stream;

a second pseudorandom noise source located near the means for receiving, for generating a stream of data identical with the one produced by the first pseudorandom noise source; and

means for logically combining the demodulated data stream with the data stream from the second pseudorandom noise source, for recovering the original data stream at the reduced data rate.

17. (New) The digital communication apparatus of claim 14, wherein the means for reducing the rate of the information data stream comprises data buffers used to store the information data stream.

18. (New) The digital communication apparatus of claim 14, wherein, upon input to the means for transmitting, the logically combined data stream is used to modulate a carrier via binary phase shift keying (BPSK).